CLAIMS

1.   A method for automatically placing components (20 to 23) of a circuit on a base plate (6) based on predefined position data, comprising the steps of:

a)   detecting (S2) the position of at least one reference mark (24) formed at the base plate (6);

b)   calculating (S4) a target position for placing a substrate (20) on the base plate (6) based on the detected position of the first reference mark (24) and the predefined position data for said substrate (20) and placing (S6) the substrate (20) at the calculated position;

c)   detecting (S7) the position of at least one second reference mark (26) formed at the substrate (20);

d)   calculating (S9) a target position for placing a further component (21, 22) on the substrate (20) based on the detected position of the second reference mark (26) and the predefined position data for said component (21, 22), and placing (S11) the component (21, 22) at the calculated target position.

2.   The method of claim 1, characterized in that the component (21, 22) is pressed against an adhesive layer applied to said substrate (20) with a predetermined pressing force and/or duration (S65).

3.   The method of claim 2, characterized in that the pressing force and/or duration is determined depending on the shape of the component (21, 22).

4.   The method of claim 2 or 3, characterized in that when placing the component (21, 22) it is moved vertically towards the substrate (20) (S62) and is decelerated before reaching the surface of the substrate (S64).

5.   The method of any preceding claim, characterized that in step d) (S9) the target position of the component is calculated in three spatial directions taking account of the thickness of the substrate (20), and that the component (21, 22) is decelerated before reaching the height of the thus calculated target position (S64).

6.   The method of any preceding claim, characterized that in step a) the positions of at least three first reference marks (24) are detected in all three spatial directions (S2), and that the height of the substrate (20) of the target position is calculated based on the detected heights of the three first reference marks (24) (S9).

7.   The method of any preceding claim, characterized in that the height of the substrate surface is measured at the target position and that the component (21, 22) is decelerated (S64) before reaching the measured height.

8.   A method according to any preceding claim, characterized in that the steps a) to d) are carried out while the base plate is located at a same placing machine.

9.   A method according to any of claims 1 to 7, characterized in that the steps a) and b) are carried out at a first placing machine and steps c) and d) are carried out a second placing machine.

10.   A method according to any one of the preceding claims, characterized in that the

predefined position data are transferred into all placing machines that carry out the

steps a) to d) from a CAD systems.

11.   A method according to any preceding claim wherein the components of a

circuit are substrates (20 to 22) and/or circuit components (23).